

embodiment is each formed as a separate integrated circuit chip. Chipset 120 for other embodiments may comprise any suitable one or more integrated circuit devices.

[0020] MCH 130 may comprise any suitable interface controllers to provide for any suitable communication link to processor bus 110 and/or to any suitable device or component in communication with MCH 130. MCH 130 for one embodiment provides suitable arbitration, buffering, and coherency management for each interface.

[0021] MCH 130 is coupled to processor bus 110 and provides an interface to processors 102 and 104 over processor bus 110. Processor 102 and/or processor 104 may alternatively be combined with MCH 130 to form a single chip. MCH 130 for one embodiment also provides an interface to a main memory 132 and a graphics controller 134 each coupled to MCH 130. Main memory 132 stores data and/or instructions, for example, for computer system 100 and may comprise any suitable memory, such as a dynamic random access memory (DRAM) for example. Graphics controller 134 controls the display of information on a suitable display 136, such as a cathode ray tube (CRT) or liquid crystal display (LCD) for example, coupled to graphics controller 134. MCH 130 for one embodiment interfaces with graphics controller 134 through an accelerated graphics port (AGP). Graphics controller 134 for one embodiment may alternatively be combined with MCH 130 to form a single chip.

[0022] MCH 130 is also coupled to ICH 140 to provide access to ICH 140 through a hub interface. ICH 140 provides an interface to I/O devices or peripheral components for computer system 100. ICH 140 may comprise any suitable interface controllers to provide for any suitable communication link to MCH 130 and/or to any suitable device or component in communication with ICH 140. ICH 140 for one embodiment provides suitable arbitration and buffering for each interface.

[0023] For one embodiment, ICH 140 provides an interface to one or more suitable integrated drive electronics (IDE) drives 142, such as a hard disk drive (HDD) or compact disc read only memory (CD ROM) drive for example, to store data and/or instructions for example, one or more suitable universal serial bus (USB) devices through one or more USB ports 144, an audio coder/decoder (codec) 146, and a modem codec 148. ICH 140 for one embodiment also provides an interface through a super I/O controller 150 to a keyboard 151, a mouse 152, one or more suitable devices, such as a printer for example, through one or more parallel ports 153, one or more suitable devices through one or more serial ports 154, and a floppy disk drive 155. ICH 140 for one embodiment further provides an interface to one or more suitable peripheral component interconnect (PCI) devices coupled to ICH 140 through one or more PCI slots 162 on a PCI bus and an interface to one or more suitable industry standard architecture (ISA) devices coupled to ICH 140 by the PCI bus through an ISA bridge 164. ISA bridge 164 interfaces with one or more ISA devices through one or more ISA slots 166 on an ISA bus.

[0024] ICH 140 is also coupled to FWH 170 to provide an interface to FWH 170. FWH 170 may comprise any suitable interface controller to provide for any suitable communication link to ICH 140. FWH 170 for one embodiment may share at least a portion of the interface between ICH 140 and super I/O controller 150. FWH 170 comprises a basic input/output system (BIOS) memory 172 to store suitable system and/or video BIOS software. BIOS memory 172 may comprise any suitable non-volatile memory, such as a flash memory for example.

[0025] Additionally, computer system 100 includes translation unit 180, compiler unit 182 and linker unit 184. In an embodiment, translation unit 180, compiler unit 182 and linker unit 184 can be processes or tasks that can reside within main memory 132

and/or processors 102 and 104 and can be executed within processors 102 and 104. However, embodiments of the present invention are not so limited, as translation unit 180, compiler unit 182 and linker unit 184 can be different types of hardware (such as digital logic) executing the processing described herein (which is described in more detail below).

[0026] Accordingly, computer system 100 includes a machine-readable medium on which is stored a set of instructions (i.e., software) embodying any one, or all, of the methodologies to be described below. For example, software can reside, completely or at least partially, within main memory 132 and/or within processors 102/104. For the purposes of this specification, the term "machine-readable medium" shall be taken to include any mechanism that provides (i.e., stores and/or transmits) information in a form readable by a machine (e.g., a computer). For example, a machine-readable medium includes read only memory (ROM); random access memory (RAM); magnetic disk storage media; optical storage media; flash memory devices; electrical, optical, acoustical or other form of propagated signals (e.g., carrier waves, infrared signals, digital signals, etc.); etc.

[0027] Figure 2 illustrates a data flow diagram for generation of a number of executable program units that include instances of a atomic operation according to one embodiment of the invention. As shown, program unit(s) 202 is input into translation unit 180. In an embodiment, there can be one to a number of such program units input into translation unit 180. Examples of a program unit include a program or a module, subroutine or function within a given program. In one embodiment, program unit(s) 202 are source code. The types of source code may include, but are not limited to, C, C++, Fortran, Java, Pascal, etc. However, embodiments of the present invention are not limited to program unit(s) 202 being written at the source code level. In other embodiments, such